

# HEATHKIT MODEL BT-1 BATTERY TESTER



## SPECIFICATIONS

Test Ranges: .....	0 to 15 volts 0 to 180 volts.
Load Current: .....	A-BATT. Range 100 ma. B-BATT. Range 10 ma.
Meter Indication: .....	GOOD - WEAK - REPLACE
Size: .....	5 7/8" long x 3" wide x 2 3/4" high
Shipping Weight: .....	3 lbs.



# ASSEMBLY AND OPERATION OF THE HEATHKIT BATTERY TESTER BT-1

The Heathkit Battery Tester provides a rapid, easy method of determining the condition of all commonly used dry batteries. Each battery is tested under proper load conditions. The three color meter scale shows the actual condition of the battery as it is when in use.

Two ranges are available; one for lower voltage "A" batteries, the other for higher voltage "B" batteries. The tester is used in the A-BATT. position when testing flashlight, lantern, radio "A", ignition and other heavy duty batteries. In this position a higher load current is drawn to simulate the actual working conditions. The B-BATT. range is used for high voltage, low output current hearing aid and radio "B" batteries, etc. This range is also used when testing some low voltage, light duty cells. Examples are penlight cells, small hearing aid "A" batteries and mercury cells.

## USING THE HEATHKIT BATTERY TESTER

To test a battery the slide switch must be set for the proper type. Next the pointer knob is adjusted to the voltage rating of the battery. With these adjustments made, the black lead is touched to the negative terminal and the red lead to the positive terminal of the battery. The meter reads directly the condition of the battery.

The meter calibration on the BT-1 is adjusted to show a battery weak when its terminal voltage, under load conditions, drops to between 70% and 90% of rated voltage. When the terminal voltage drops below 70% of rated value, the meter indicates replacement. These general ranges will apply to most batteries in use.

Certain specific applications may not allow dry batteries to be used as fully. As an example, a person with a severe hearing condition may have to replace batteries which still indicate "weak" while another person with a less severe hearing condition can use the same batteries until they show "replace" on the tester. In such cases, the user can determine by experimenting what meter indication represents the replacement point for his particular use.

## INSPECTING THE KIT

Upon receiving the kit, immediately check each part against the Parts List. In this way you will become familiar with the various components and also, it will prevent throwing away any small parts with the packing.

Should inspection reveal the necessity for replacement of a component, write to the Heath Company immediately. The following information should be supplied in all cases:

- A. Clearly identify the part in question by using the part number and description found in the manual Parts List.
- B. Identify the type and model number of kit in which it is used.
- C. Mention the order number and date of kit purchase.
- D. Describe the nature of the defect or the reason for requesting replacement.

The Heath Company will promptly supply the necessary replacement. Please do not return the defective component until specifically requested to do so. Do not under any circumstances dismantle the component in question as this will void the guarantee.

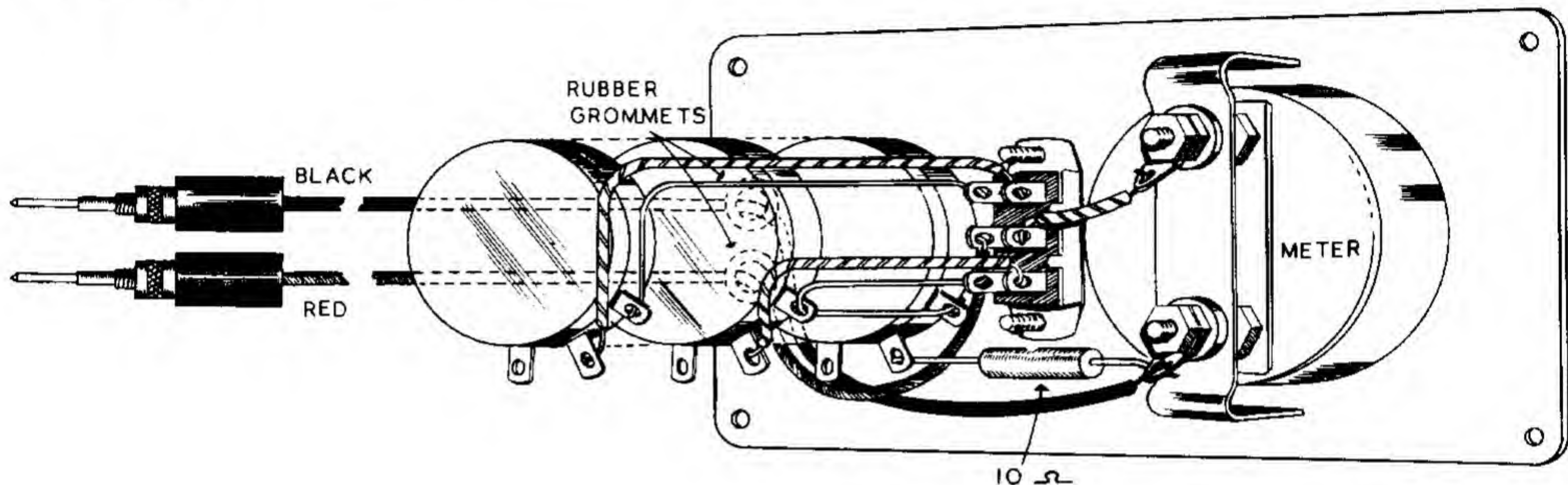


## ASSEMBLY

The construction of the Battery Tester is very simple, still a little extra care will be well repaid by long, trouble-free service. Study the Pictorial Diagram carefully.

**NOTE: ALL GUARANTEES ARE VOIDED AND WE WILL NOT REPAIR OR SERVICE INSTRUMENTS IN WHICH ACID CORE SOLDER OR PASTES HAVE BEEN USED.**

Begin assembly by inserting the two rubber grommets in the holes at the bottom of the panel. Next, mount the DPDT slide switch, three section control, and meter. See the Pictorial for the position of the control lugs and check the detailed drawings which show how to mount the control and meter.



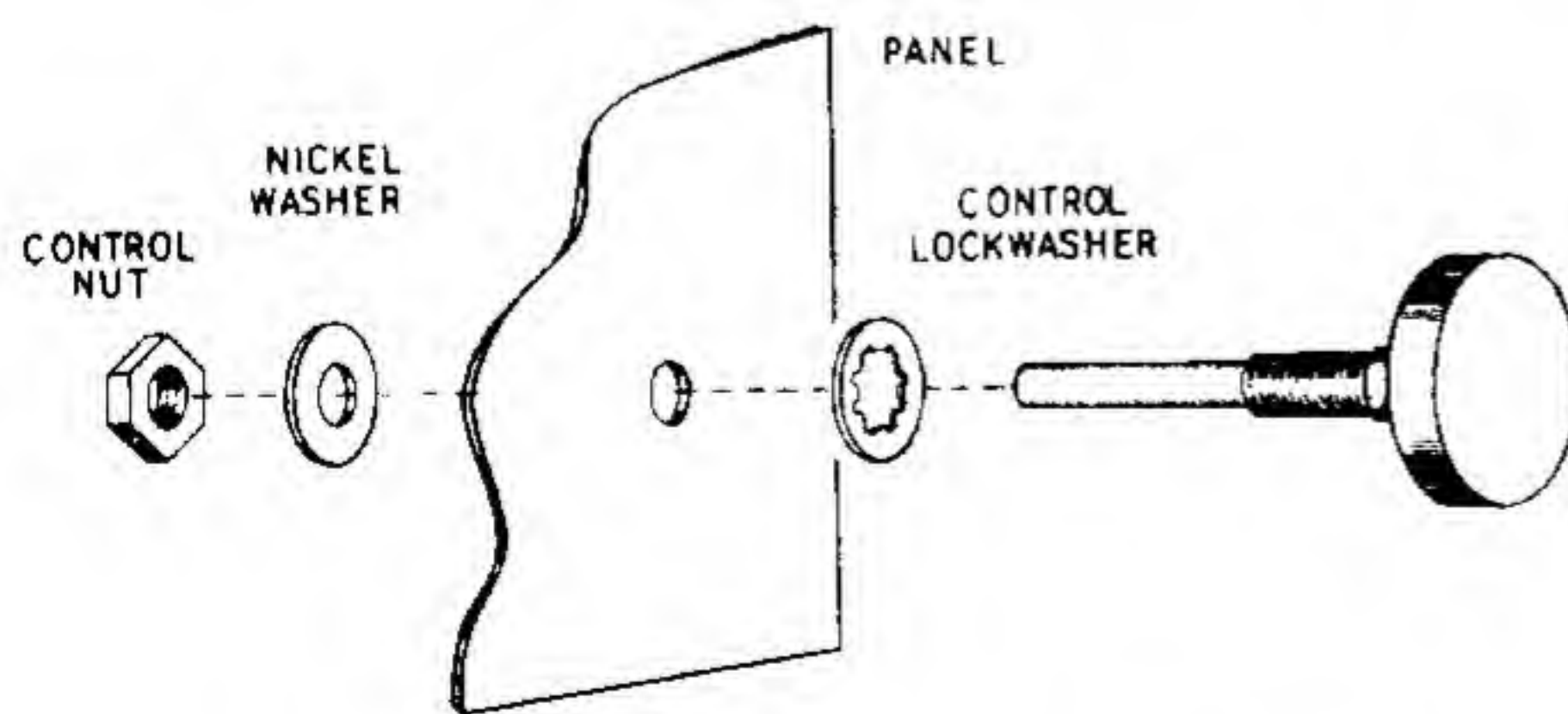
## PICTORIAL WIRING DIAGRAM

With the large parts mounted, the wiring may be done. Follow the Pictorial closely when connecting each lead.

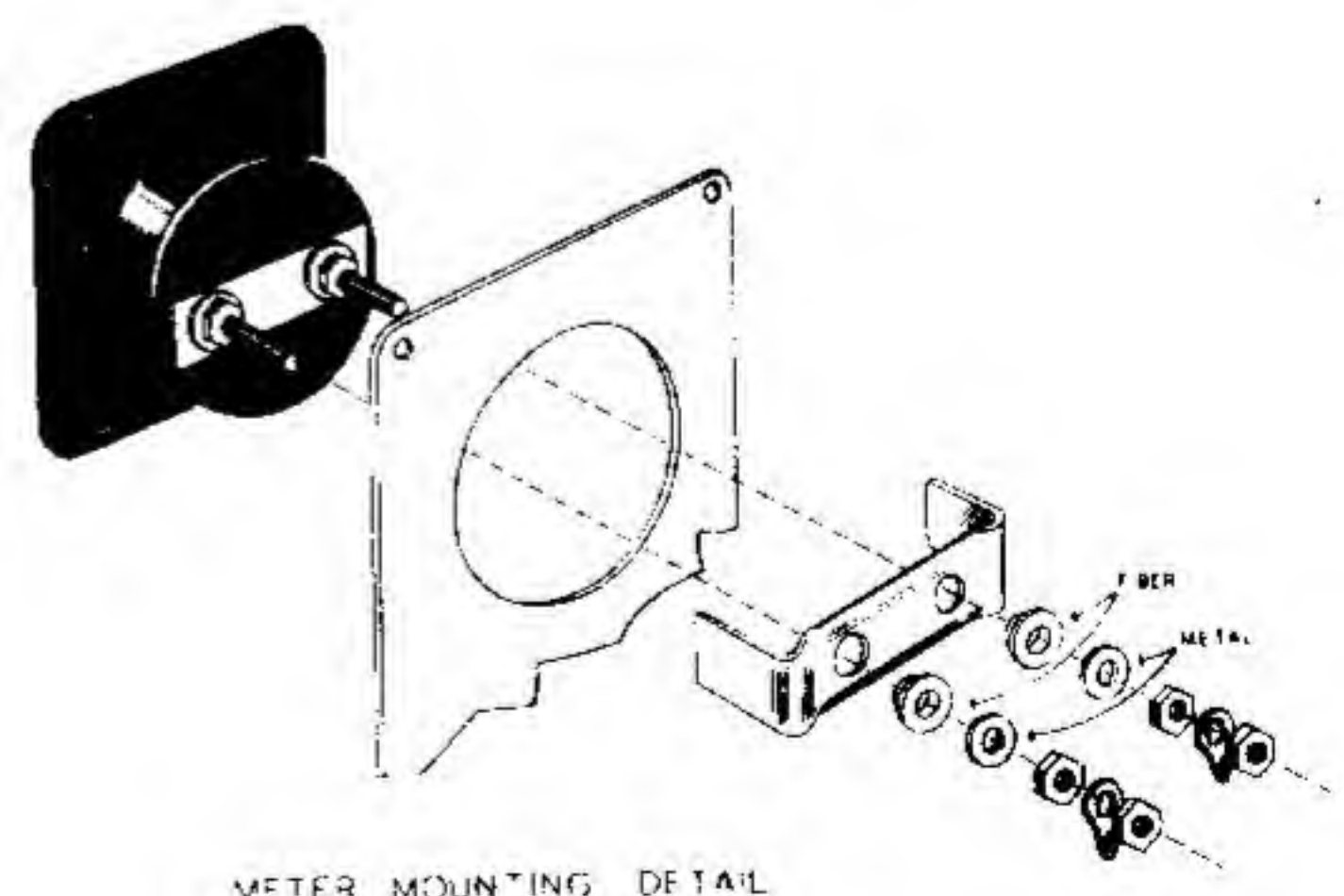
The test probes should be attached to the test leads before the leads are passed through the rubber grommets and connected.

The instrument is now ready to be placed in its case. Fasten the panel with the screws provided. To set the pointer knob, turn the control shaft to the extreme counterclockwise position and tighten the knob setscrew with the pointer indicating the end marking on the dial scale.

When the pointer knob is set as outlined above, the Tester will be adjusted to all voltage settings. Occasionally, a completed kit may read slightly high or low on all batteries. If this tendency is noticed, a small readjustment of the pointer knob will correct the situation.



HOW TO MOUNT CONTROLS & SWITCHES



METER MOUNTING DETAIL



## CIRCUIT DESCRIPTION

The circuit of the Heathkit Battery Tester consists of two fundamental elements. The first is an adjustable load which when connected to a battery draws the proper amount of current to simulate actual working conditions. This load is part of the three section wire-wound control and is correctly adjusted when the pointer knob is set to the rated battery voltage.

The second element is a voltmeter circuit with a variable multiplier. The multiplier is another section of the wire-wound control. This multiplier is also adjusted by the pointer knob so that the meter reads the proper terminal voltage of the battery being tested.

In the B-BATT. range the meter and multiplier perform both functions together. With the multiplier adjusted to the rated battery voltage by the pointer knob, the meter circuit serves as the correct load for the test.

